REMARKS

By the present amendment independent claims 1 and 10 have been amended. Claims 1-8 and 10-16 remain in the application.

The Examiner rejected claims 1, 2, 4, 6, 7, 10, 11, 14, and 15 under 35 U.S.C. §102(e) based on Fuller et al. (US 6,743,468). Rejection of a claim under 35 U.S.C. §102(e) requires that each and every limitation of the rejected claim be found in the cited reference. If even a single limitation is not found in the cited reference then the rejection is improper and must be withdrawn.

By the present amendment claim 1 requires "providing a kinetically sprayed surface having a defect in the surface, said defect caused by said kinetic spraying, applying a repair coating to the defect by thermally spraying a molten material on the defect by a thermal spray process selected from the group consisting of a High Velocity Oxy-Fuel combustion thermal spray process, a wire arc thermal spray process, a vacuum plasma thermal spray process, a flame spray thermal process, or a radio frequency plasma thermal spray process thereby, filling the defect and repairing the defect". This is unlike the process disclosed in the cited reference. Fuller et al. teaches using a kinetic spray supersonic nozzle and a high capacity heater to oscillate the temperature thereby permitting both kinetic spraying and a thermal plasma spray process using the same kinetic spray nozzle and system. The disclosure of Fuller et al. and the system disclosed therein can not be used for any other thermal spray process. None of the specifically recited thermal spray processes of a High Velocity Oxy-Fuel combustion thermal spray process, a wire arc thermal spray process, a vacuum plasma thermal spray process, a flame spray thermal process, or a radio frequency plasma thermal spray process are possible using the system disclosed in Fuller et al. All of these thermal spray processes require specific thermal spraying equipment other than that disclosed in Fuller et al. Attached as Exhibit A is a portion of the book entitled "Equipment and Theory A lesson from THERMAL SPRAY TECHNOLOGY", Course 51, Lesson, Test 2 by Dr. Ronald W. Smith, P.E., Edited by Brooke Willis, Material Engineering Institute, ASM International®, published in 1992, pages 18-22. The Examiner had suggested that the system of Fuller et al. could be used as a High Velocity Oxy-Fuel combustion thermal spray process. The attached exhibit shows the equipment and designs actually used in the process. None of the system disclosed in Fuller et al. is capable of carrying out a High Velocity Oxy-Fuel combustion thermal spray process as can be clearly seen. The recited thermal spray processes in claim 1 can not be conducted using the system disclosed in Fuller et al., thus claim 1 includes limitations not found in Fuller. Because claim 1 includes limitations not found in Fuller et al. the rejection of claim 1, and the claims that depend therefrom, under 35 U.S.C. §102(e) based on Fuller et al. is improper and must be withdrawn.

By the present amendment claim 10 requires providing a kinetically sprayed surface having a defect in the surface with a defect caused by the kinetic spraying, and "applying a repair coating to the defect by thermally spraying a molten material on the defect by a process selected from the group consisting of a High Velocity Oxy-Fuel combustion thermal spray process, a wire arc thermal spray process, a vacuum plasma thermal spray process, a flame spray thermal process, or a radio frequency plasma thermal spray process thereby filling the defect and repairing the defect; and applying an additional kinetically sprayed surface over the repaired defect". As discussed above with respect to claim 1, these processes are unlike the process disclosed in the cited reference. Fuller et al. teaches using a kinetic spray supersonic nozzle and a high capacity heater to oscillate the temperature thereby permitting both kinetic spraying and a thermal plasma spray process using the same kinetic spray nozzle and system. The disclosure of Fuller et al. and the system disclosed therein can not be used for any other thermal spray process. None of the specifically recited thermal spray processes of a High Velocity Oxy-Fuel combustion thermal spray process, a wire arc thermal spray process, a vacuum plasma thermal spray process, a flame spray thermal process, or a radio frequency plasma thermal spray process are possible using the system disclosed in Fuller et al. All of these thermal spray processes require specific thermal spraying equipment other than that disclosed in Fuller et al. Because claim 10 includes limitations not found in Fuller et al. the rejection of claim 10, and the claims that depend therefrom, under 35 U.S.C. §102(e) is improper and must be withdrawn.

The Examiner rejected claims 3 and 12 under 35 U.S.C. §103 based on Fuller et al. Rejection of a claim under 35 U.S.C. §103 based on a single reference requires that the Examiner must point to a teaching, suggestion, or motivation found within the reference itself that would lead one of ordinary skill in the art to modify the teachings of the reference thereby making the invention obvious. Claims 1 and 10, which the rejected claims depend from, each require that the thermal spray process be selected from the group consisting of a High Velocity Oxy-Fuel combustion thermal spray process, a wire arc thermal spray process, a vacuum plasma thermal spray process, a flame spray thermal process, or a radio frequency plasma thermal spray process. None of these processes are taught by or obvious based on Fuller et al. Fuller et al. specifically teaches a modified kinetic spray system incorporating a high capacity heater that allows the kinetic spray system to oscillate between kinetic spraying and plasma thermal spraying. The system disclosed in Fuller et al., however, does not teach or make obvious the thermal spray processes claimed in claims 1 and 10 of the present invention. In addition, there is no way to modify the system as disclosed in Fuller et al. to allow it to thermally spray by any of the processes claimed in claims 1 or 10. For the reasons stated above the rejection of claims 3 and 12 under 35 U.S.C. §103 based on Fuller et al is improper and must be withdrawn. In addition, the applicants will consider filing the declaration and terminal disclaimer to overcome this rejection once the Examiner indicates allowability of the claims.

The Examiner rejected claims 5 and 13 under 35 U.S.C. § 103(a) based on Fuller et al. as applied to claims 1, 2, 4, 6, 7, 10, 11, 14, and 15 and the admitted prior art. As discussed above Fuller et al. does not teach, motivate or suggest how to modify the system disclosed therein to accomplish any of the thermal spray processes claimed in independent claims 1 or 10 and neither does the admitted prior art, thus the rejection of claims 5 and 13 under 35 U.S.C. § 103(a) based on Fuller et al. and the admitted prior art is improper and must be withdrawn.

The Examiner rejected claims 8 and 16 under 35 U.S.C. §103 based on Fuller et al. and Van Steenkiste et al. (US 6,139,913). As discussed above Fuller et al. teaches use of a kinetic spray system modified to include an oscillating high capacity heater to allow kinetic spraying and plasma thermal spraying. Fuller et al. does not teach, however, use of a thermal spray process selected from the group consisting of a High Velocity Oxy-Fuel combustion thermal spray process, a wire arc thermal spray process, a vacuum plasma thermal spray process, a flame spray thermal process, or a radio frequency plasma thermal spray process. Nor is the

Fuller et al. system capable of modification to allow these thermal spray processes. This deficiency of Fuller et al. is not supplemented by Van Steenkiste et al. Van Steenkiste et al. only teaches a conventional kinetic spray process. Thus, the combination of Fuller et al. and Van Steenkiste et al. does not make claim 8 or claim 16 obvious, thus, the rejection of these claims under 35 U.S.C. §103 based on Fuller et al. and Van Steenkiste et al. is improper and must be withdrawn.

The Examiner rejected claims 1-4, 6-8, 10-12, and 14-16 under 35 U.S.C. §103 based on Brogan. As discussed above independent claim 1 requires "providing a kinetically sprayed surface having a defect in the surface, said defect caused by said kinetic spraying, applying a repair coating to the defect by thermally spraying a molten material on the defect by a thermal spray process selected from the group consisting of a High Velocity Oxy-Fuel combustion thermal spray process, a wire arc thermal spray process, a vacuum plasma thermal spray process, a flame spray thermal process, or a radio frequency plasma thermal spray process thereby, filling the defect and repairing the defect". Claim 10 requires providing a kinetically sprayed surface having a defect in the surface with a defect caused by the kinetic spraying, and "applying a repair coating to the defect by thermally spraying a molten material on the defect by a process selected from the group consisting of a High Velocity Oxy-Fuel combustion thermal spray process, a wire arc thermal spray process, a vacuum plasma thermal spray process, a flame spray thermal process, or a radio frequency plasma thermal spray process thereby filling the defect and repairing the defect; and applying an additional kinetically sprayed surface over the repaired defect".

The Examiner suggests that Brogan teaches the possibility of a kinetically sprayed surface, thus is not the case. The Examiner points to paragraphs 29 and 69-70 of Brogan. In 29 Brogan suggests that the term “thermal spraying” encompasses cold gas dynamic spraying. This is simply a mistake and false. In the art there is a clear difference between cold gas dynamic spraying and thermal spraying. Thermal spraying always involves thermal softening of the materials being sprayed, cold gas dynamic spraying always means no thermal softening of the particles being sprayed. The Examiner is directed to paragraph 30 of Brogan wherein Brogan clearly identifies what is meant by “thermal spraying” in the context of his disclosure and cold gas dynamic spraying or kinetic spraying is not encompassed. Brogan states:

> In the context of the present invention, the term "thermal spraying" is intended to include spraying of a polymer or polymer particulate with such velocity that its kinetic energy is **sufficient to soften/melt the polymer or polymer particulate upon impact with a surface** resulting in a coalesced coating of polymer on the surface. The term "thermal spraying" is also meant to encompass any known method of depositing an organic containing material, such as a polymer, onto a surface **wherein the organic containing material is heated above the ambient temperature to a point where it softens and/or melts** so that is may be deposited on a surface by a stream of propelling gas impinging on the organic containing material. (emphasis added).

As the Examiner is aware a patentee can be his own lexicographer provided terms are clearly defined. Here Brogan has clearly defined what is disclosed and it is not kinetic spray that is disclosed.

With respect to paragraphs 69-70 the Examiner is also wrong to suggest that this discloses a kinetically sprayed surface. In this portion Brogan discusses heating a surface to melt the existing covering and then thermally spraying on to it. This is also unlike the present invention. All Brogan discloses is repairing worn and damages surfaces using a thermal spray of a polymer and an aggregate. Claim 10 requires the further step of kinetically spraying over the healed surface after the thermal spraying and the Examiner apparently ignores this limitation since there is no discussion as to how this additional step is obvious based on Brogan. Thus, because Brogan does not teach or make obvious each and every limitation of claims 1 or 10, the rejection of these claims and the claims depending therefrom under 35 U.S.C. §103 based on Brogan is improper and must be withdrawn.

Applicant's attorney respectfully submits that the claims as amended are now in condition for allowance and respectfully requests such allowance.

Respectfully submitted,

HOWARD & HOWARD ATTORNEYS

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Date

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CERTIFICATE OF EXPRESS MAILING

I hereby certify that this Amendment is being deposited with the United States Postal Service as Express Mail, Mail Label No. **EV695474141US**, postage prepaid, in an envelope addressed to, Mail Stop: AF, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on **August 8, 2005**.

Amy C. Grubb

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